The National Network of Libraries of Medicine
National Library of Medicine Training Center

2013 Assessment of *PubMed® for Trainers* and *TOXNET® and Beyond*

Report compiled by

Cynthia Olney, PhD
C.O. Evaluation Consulting, LLC
April 29, 2013

Executive Summary

National Library of Medicine Training Center (NTC) for the National Network of Libraries of Medicine provides e-learning and in-person classes designed to support the effective use of NLM information products and services by librarians and professionals in the health work force. The center strives to provide leadership to the NN/LM regions related to e-learning delivery methods and instructional best practices for adult learners.

In January 2013, the NLM National Training Center (NTC) assessed two of its mainstay classes: *PubMed for Trainers* and *TOXNET and Beyond*. With guidance from an evaluation consultant, NTC staff designed a questionnaire sent to session participants who had recently completed the classes.[1] The questionnaire received excellent response, with 70% of the 287 participants returning the questionnaire.

Key assessment findings are summarized in the executive summary. The technical report (available on request) provides statistical summary tables and qualitative responses to each item on the questionnaire.

PubMed for Trainers

Respondent experience

PubMed for Trainers attracted participants with a high level of experience using and providing instruction on PubMed. Most were librarians, predominantly from health sciences and academic non-health sciences libraries. Fifty-five percent of respondents had taken more than one training session on PubMed and another 18% had taken one class prior to taking *PubMed for Trainers*. Sixty-two percent of the respondents taught PubMed classes.

Most were committed to improving their PubMed skills. Approximately two-thirds of respondents said they took steps to increase their knowledge of

[1] Participants were included if NTC records showed they had completed *PubMed for Trainers* in 2012 or if they had taken *TOXNET and Beyond* no earlier than June 2011. This time frame was chosen because PMT began in 2012 and TOXNET and Beyond classes started being taught by the NTC when it was established at University of Utah.

PubMed after taking the class. A number of respondents commented that they take PubMed courses frequently to improve their PubMed search skills and learn about changes. Both experienced and novice PubMed users recognized that the latter were somewhat at a disadvantage in *PubMed for Trainers* because their knowledge of the database was very basic.

PubMed has so many features that I recommend annual training…for all librarians that need to use PubMed or train others to use PubMed. I learn something new each year and reinforce my knowledge of what I already know.

Respondents' reaction to the class

Respondents' ratings of *PubMed for Trainers* was consistently positive. As Figures 1 and 2 show, 89% said the class was the worth the time and effort invested. This is a remarkable percentage, given the intensive time commitment required by the course (4 two-hour online sessions, followed by a seven-hour in-person session). A high percentage of respondents (86%) also said the class covered the information they expected it to cover, although there were recurring comments indicating that a number of respondents expected more instruction about teaching methods in the class.

Figure 1: Was the class worth time and effort invested?

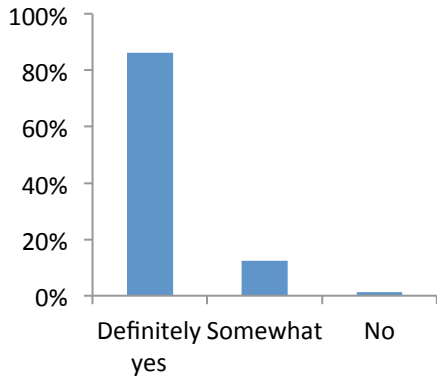
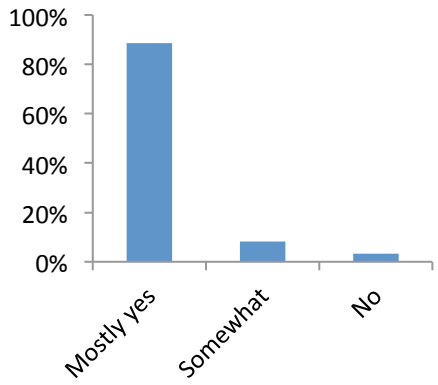


Figure 2: Did the class cover expected information?



However, this limitation did not seem to dampen most respondents' enthusiasm for the information that was presented. Most respondents liked the advanced

search techniques offered in the class, which they said helped them become better teachers, either in a formal class setting or informally through one-to-one assistance with their patrons. The positive ratings in Figures 1 and 2 indicate that the respondents valued the content presented in the class and would not want it to be removed in lieu of activities related to teaching techniques.

I am now my library's PubMed Guru. Since taking the PMT, I have fielded over two dozen requests for help from my library colleagues on very convoluted, difficult searches. I am quite pleased with myself--and your training.

Skill development

Almost all respondents reported skill gains as a result of the class. Most said that *PubMed for Trainers* improved their efficiency in performing PubMed searches (96%), their skill in conducting searches for others (96%), and their ability to help others use PubMed (97%). Ninety percent said the class increased their confidence level related to promoting their services within their organizations and 82% said the class made them more willing to reach out to new groups or potential users.

The comments throughout the questionnaire indicated that the respondents particularly appreciated learning about PubMed features and search techniques. For example, one person said: "I learned how to use subheadings independent of headings. I also learned about their own search hedges and how to use them." Another wrote "I now pay attention to the search boxes on the right, showing what my search is doing. I have also used the thesaurus."

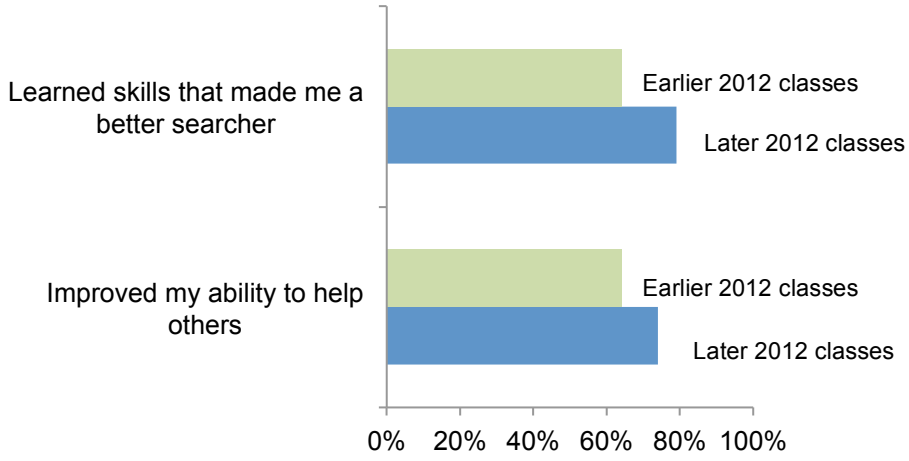
Many respondents also talked about gaining a better understanding of increased understanding of how to use MeSH. One respondent wrote: "Learning about MeSH term searching has definitely helped me when I hit a roadblock in searching (when I cannot decide what the most appropriate term is for example), and I've been able to pass that information on to others."

The NTC made changes to *PubMed for Trainers* between February and October 2012, so analysis was conducted to compare responses of respondents who took the class in the first part of the year (February through May) and the second part

of the year (June through October). The class content was tweaked to add more information about lesson plan design. Very few statistically significant differences were found on most measures, in part because overall ratings were so consistently positive.

However, data for two learning outcomes items did show a significant relationship between date of class and self-reported learning. As Figure 3 shows, a higher percentage of respondents "strongly agreed" that *PubMed for Trainers* improved their search skills and improved their ability to help others use PubMed.

Figure 3: Comparison of respondents in early and later PMT[2] classes who "strongly agreed" with statements about skill gains

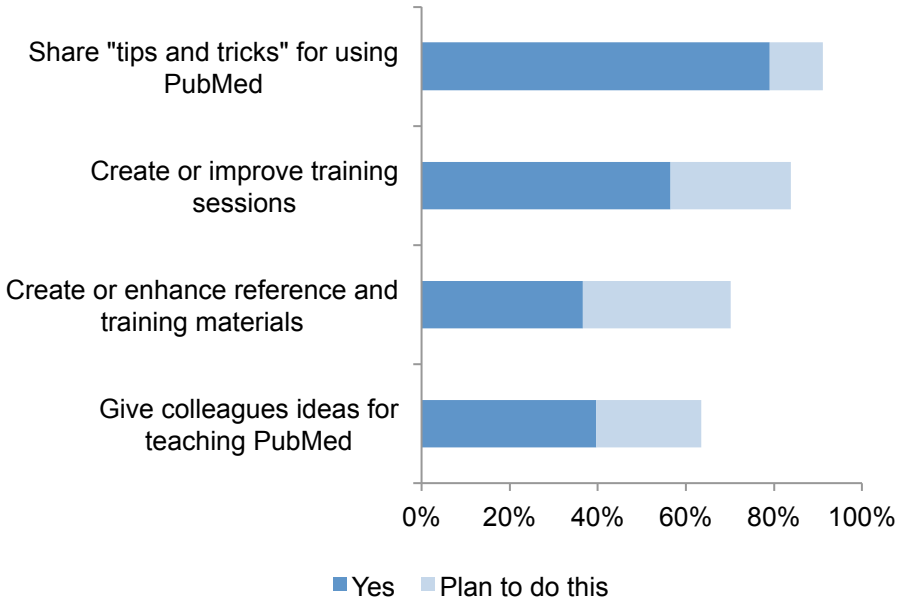


Use of class information

The majority of respondents did put the information they learned in the class to good use. (See Figure 4.) They most frequently reported sharing or planning to use PubMed search tips with others (91%), and 64% shared or planned to share tips with colleagues about teaching PubMed. Eighty-four percent have used or plan to use class information to create or improve training, and 71% have used or plan to use the information for library materials.

[2]For brevity, *PubMed for Trainers is abbreviated to PMT in table and figure titles*

Figure 4: Respondents' use or planned use of *PubMed for Trainers*



The class inspired 42% of respondents to try new teaching techniques. Most frequently, respondents said they chose to incorporate small group discussion and interactive class exercises into their training.

More than half of the respondents wrote examples of how the class changed their ability to teach or assist others with PubMed. Quite a few respondents said that their increased understanding of PubMed's structure and features helped them serve their patrons. One respondent wrote "more in-depth knowledge of how PubMed works 'behind the scenes' has increased my ability to explain why you get certain search results." Quite a few also talked about how they used information from the class when showing patrons how to use PubMed.

I've been doing a series of articles in my library newsletter about how to improve PubMed searches. This both spreads helpful info to my users AND points out that maybe the medical librarian knows a thing or two that makes her valuable to have around resources.

One respondent wrote, about assisting patrons, "I am better [able] to assist them with executing searches efficiently by teaching them when to use MESH terms and when not to, as well as to pay attention to the options the filters have, that will assist in narrowing down their searches."

Some respondents reported *changing* how they provided assistance to patrons. One person wrote "I learned that NLM now recommends that users start by entering a natural-language search in the search box; this is much more user-friendly to most health professionals than the older method of starting by looking up MeSH headings."

They also incorporated information from the class into their own teaching. One respondent learned innovative ways to show how to create keyword searches and another adapted a class activity using laminated search strings for an evidence-based practice class. The class was a confidence builder for respondents, too, with quite a few saying they were more comfortable with their knowledge of PubMed and about helping others to use it. One respondent wrote "{the class] has made me more confident. I can help students without wondering if I can do what they need."

Patron feedback to respondents

Physicians and students are usually excited when they realize how easy a lot of PubMed searching can be, and how powerful a data base it is. Also, some have said how much time they save using the limiters.

Almost half of respondents described positive feedback they received from patrons whom they trained or assisted with PubMed. Many respondents said their patrons became better PubMed users and were less intimidated about the system. Others wrote that their patrons noticed faster customer service for their search requests, a positive outcome of the respondents' improved search skills. A respondent wrote "Customers are appreciative. It's improved my ability to respond quickly to their questions."

Respondents also get positive feedback about their own training session. One respondent wrote that she hears "many nice comments from students including several 'she can find anything' type comments to their peers." Another wrote that "students were more interested in my class. Previously, I wasn't able to explain PubMed well, so I only explained how to use it. When I began to explain more details of PubMed, students really enjoyed learning about it."

Future considerations for *PubMed for Trainers*

The quantitative findings, along with the rich information provided in respondents' written comments, showed that *PubMed for Trainers* is highly valued by respondents. Respondents did give many suggestions for improving the course. (The comments are listed verbatim in the Technical Report.) Most frequently, respondents recommended that more search exercises be added to the class. The second most frequent suggestions were related to time management. Some respondents thought the class needed to be longer. Others thought that more time should be allotted to in-person.

As noted earlier, some respondents did indicate that the name of the class did not accurately reflect the content: they expected more information about actual teaching methods. Respondents' feedback indicated that many left the class with improved ability to help their users with PubMed. However, some respondents did expect more information about formal teaching technique. Some directly said the class did not provide any tips for improving their ability to teach PubMed. One respondent wrote "I didn't feel like the tips and exercises for creating training sessions were really more than someone would think through on their own. I didn't feel like there was any actually (sic) curriculum development or handout design information that was included in the class." However, others said the class helped them more with coaching others than with teaching. One person wrote "I think it has been most useful in consultations with students & faculty and to a lesser degree in classes that I teach (when I usually have only about 10 minutes to cover PubMed, since we cover a number of different resources)."

I suggest separate[ing] how to use PubMed and how to teach PubMed into separate classes or at least different or at least different modules.

Some respondents made specific suggestions for the type of information about teaching they would like to see incorporated into *PubMed for Trainers*. For example, one person recommended providing alternative approaches for different types of audiences, such as librarians, medical writers, or health professionals. Others suggested more information about teaching mechanics, tips for teaching novice users, and how to develop a class outline for one-time training sessions.

Many respondents also would like to take PubMed refresher courses and some requested more opportunities for this type of class. The NTC now has 90-minute

online sessions related to PubMed that were not available at the time this questionnaire was administered.

Respondents were asked if they would be interested in participating in an electronic discussion list using a social media tool (specifically, LinkedIN). There was only modest support for this idea, with 38% saying yes. Most respondents responded negatively (38%) or were unsure (24%). Comments indicated a number of barriers to participation, including lack of time, information overload, and inability to access social media at work.

The most prominent message from this assessment, however, is that the respondents were pleased with *PubMed for Trainers*. The class was changed significantly in 2013, so it will be interesting to compare responses to future assessment questionnaires. However, the findings here suggest the class, as it now exists, is valued by its participants.

TOXNET and Beyond

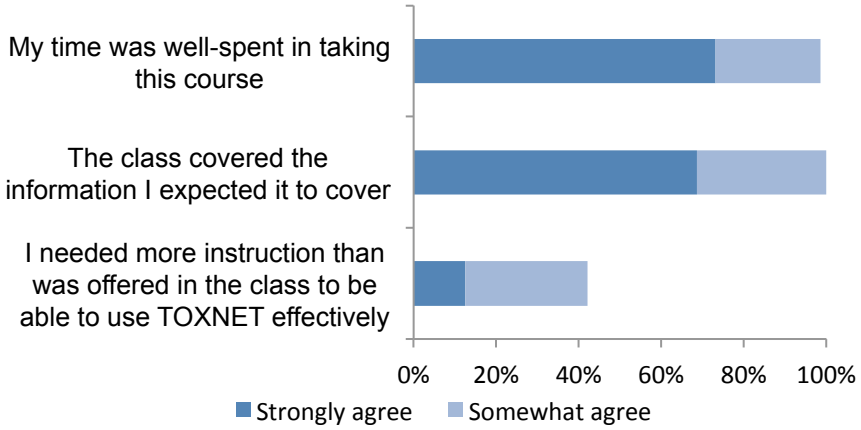
Respondent experience

Unlike *PubMed for Trainers* respondents, most *TOXNET and Beyond* respondents had limited or no experience with the TOXNET database. Of the 68 respondents who said they took *TOXNET and Beyond*, 12% considered themselves to be regular TOXNET users and another 54% had used it a few times before taking the class. About one-third of respondents had not used TOXNET prior to taking the course.

Respondents' reaction to the class

Respondents' ratings of the course were positive, with almost all of them agreeing that their time was well spent in the class and that the class covered expected information. (See Figure 5.) Less than half of the respondents said they needed more instruction to be able to use TOXNET effectively. Sixty-seven percent said they continued to improve their knowledge of TOXNET after taking the course.

Figure 5: Respondents' ratings of *TOXNET and Beyond*



Respondents' use of class Information

Sixty-two percent of respondents said they had used TOXNET after taking the class. Post-class use was highest among those who were regular users prior to taking the class, which is not surprising. The second highest usage was among those who had used TOXNET a few times before taking the class. However, 43% of non-users did report using TOXNET after training.

Table 1: Cross tabulation of after-class use of TOXNET and prior experience with TOXNET (N=67)

	Used TOXNET After Taking Class				
Used TOXNET before taking the class	Used		Have not used/ not sure		Total
Used regularly	**88%**	**7**	**13%**	**1**	**8**
Used a few times	**69%**	**25**	**31%**	**11**	**36**
Did not use/not sure	**43%**	**10**	**57%**	**13**	**23**
Chi-square=6.437, df=2, p<.05					

As Table 1 demonstrates, most respondents reported using *TOXNET and Beyond* information. Most frequently, respondents said they shared information about TOXNET with colleagues. Respondents also frequently said they used or planned to use TOXNET as a research tool to answer reference or personal questions. One respondent wrote, "I've used the Fact Sheets, LactMed and Toxline mainly.

I have also used the search feature on the home page. I have been able to answer search questions for professionals and departments within my institution."

[I] learned about new sources that can serve the health needs of the community - particularly those people who come into the public library. We do get questions from nursing mothers or individuals who are interested in finding out whether the household cleaners that they use are potentially dangerous to their health.

Slightly less than half of respondents used or planned to use *TOXNET and Beyond* information for library materials or training sessions and about one-third said they used or planned to use the information to assist community groups. Some respondents did comment about covering TOXNET in their training sessions or helping users to search the database. One person wrote: that "most people don't realize the wealth of information available through this [data] base. Just presenting this as an option has generated excitement."

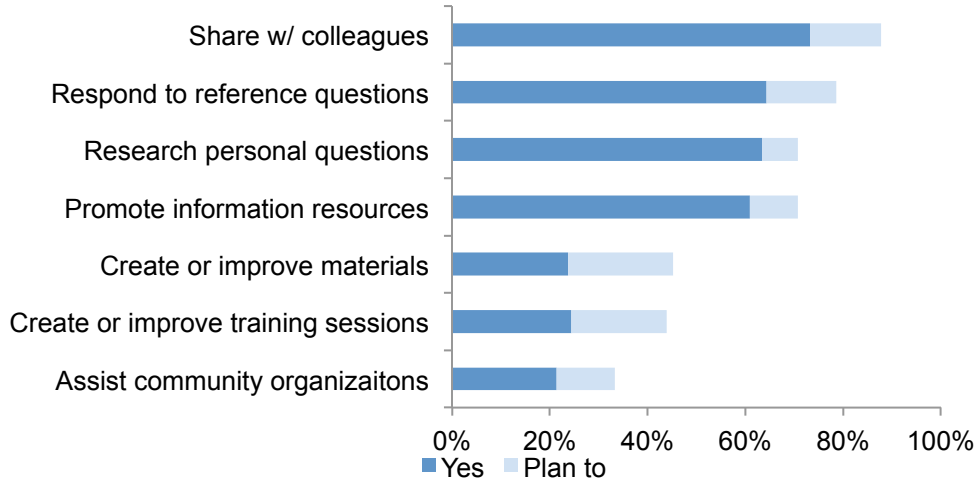
Future considerations for *TOXNET and Beyond*

As with *PubMed for Trainers*, respondents gave *TOXNET and Beyond* high marks for being a useful class. When asked for suggestions for improving the course, the most frequent recommendation was to offer separate classes for different types of users. Some respondents said that there needed to be both basic and advanced training on TOXNET. Others said that librarians and researchers were distinct audiences that required different approaches to the information. One respondent wrote "It might be a good idea to separate into two options--TOXNET for librarians, and TOXNET for scientists/researchers. The interests and intended uses were so different for these two groups." Another wrote "When I could book this class at our institution, I tried to get our researchers to attend but they don't want the basics but higher [level of instruction]."

Respondents were asked to weigh in about whether or not *TOXNET and Beyond* could be taught successfully as a webinar or a self-paced tutorial. The quantitative results indicated that more than 60% said that the class could be successfully offered in either format. However, the comments tended to be more ambivalent than the ratings. Even some of those who said "yes" to the question qualified their ratings with comments. Some respondents said, essentially, that the online formats would work fine if the class was really well designed. Some respondents said they personally preferred in-person courses, believing that respondents were better served with face-to-face assistance. For example, one person said "It depends on the person. For me, since hard science is not my background and I find it sometimes hard to understand, if it's economically feasible, I'd prefer to attendance the class in person." [sic] However, the comments may reflect those who feel most strongly about in-person training. Ratings, which outnumbered the qualitative responses considerably, suggested that there may be an audience for an online version of *TOXNET and Beyond.*

While I think it could be taught well in a tutorial, the personal interaction made it more useful when I encountered problems while doing exercises. I also enjoyed the ability to have questions answered immediately in the face to face format.

Figure 6: Use and planned use of *TOXNET and Beyond*



In summary, the *TOXNET and Beyond* seems to provide respondents with a basic knowledge of the database. The database itself may not have as broad a user-base as PubMed does, but respondents are glad to gain knowledge of it and perceive they are able to use it as a reference source when needed.

Conclusion

Participant response to PubMed for Trainers was consistently positive. Eighty-nine percent said the class was the worth the time and effort invested. Most said that PubMed for Trainers improved their efficiency in performing PubMed searches (96%), their skill in conducting searches for others (96%), and their ability to help others use PubMed (97%). Eighty-four percent have used or plan to use class information to create or improve training, and 71% have used or plan to use the information for library materials. The class inspired 42% of respondents to try new teaching techniques. Respondent feedback indicated, unequivocally, that respondents left the class with improved ability to help their users with PubMed, but some said they expected the class to include more information about formal teaching techniques. Recommendations for improving the class included more search exercises and adjustment to time management (e.g., longer course; more in-person training time).

TOXNET and Beyond also received a positive response from questionnaire participants, with almost all of them agreeing that their time was well spent in the class and that the class covered expected information. Sixty-two percent of respondents said they had used TOXNET after taking the class. Most respondents reported using the information from the TOXNET and Beyond class after completing the class. Most frequently, respondents said they shared information about TOXNET with colleagues. Most respondents said they used or planned to use TOXNET as a research tool to answer reference or personal questions. The most frequent recommendations for improving the class were related to time management of the class, such as lengthening class time or providing pre-session work followed by hands-on instruction.

Technical Report

The Technical Report contains a detailed description of the methods and analysis of each item with graphs and tables that can be adapted for shorter reports and presentations. The information is provided to illuminate the findings presented in the executive summary and provides detailed baseline information. The Technical Report is available on request.